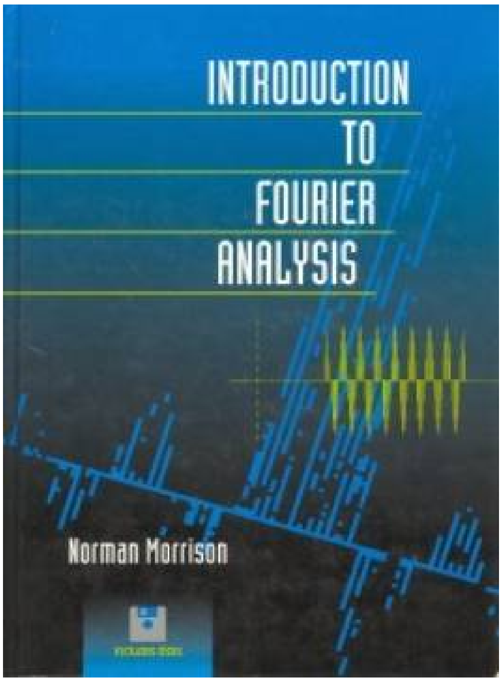
INTRODUCTION TO FOURIER ANALYSIS

NORMAN MORRISON



SUMMARY

Comprehensive, user friendly, and pedagogically structured

A fast, easy way to learn about the electrical engineer's most important mathematical tool

Based on a groundbreaking one-semester course originated by Professer Norman Morrison at the University of Cape Town, this book serves equally well as a course text and a self-study guide for professionals. Offering only relevant mathematics, it covers all the core principles of electrical engineering contained in Fourier analysis, including the time and frequency domains; the representation of waveforms in terms of complex exponentials and sinusoids; complex exponentials and sinusoids as the eigenfunctions ot linear systems; convolution; impulse response and the frequency transfer function; magnitude and phase spectra; and modulation and demodulation.

- Covers Fourier analysis exclusively for electrical engineering students and professionals
- Offers a complete FFT system Contained on the enclosed disks long for IBM compatibles, the other for Macintosh)
- Includes dozens of examples drawn from electrical engineering
- Packed with exercices, samples, and end-of-chapter problem sets

CONTENTS

PART 2 DISCRETE FOURIER ANALYSIS

PART 3 THE USER'S MANUAL FOR THE ACCOMPANYING DISKS

TOP

This first volume, a three-part introduction to the subject, is intended for students with a beginning knowledge of mathematical analysis who are motivated to discover the ideas that shape Fourier analysis. It begins with the simple conviction that Fourier arrived at in the early nineteenth century when studying problems in the physical sciences--that an arbitrary function can be written as an infinite sum of the most basic trigonometric functions. The first part implements this idea in terms of notions of convergence and summability of Fourier series, while highlighting applications such as t Introduction to Fourier Analysis. Chapter Â· May 2008 with 2 Reads. How we measure 'reads'.Â Systems of Orthogonal Functions-Fourier Coefficients Complex Representation of Trigonometric Series Fourier Transfonn-Functions Defined on the Real Line Fourier Transfonn of a Convolution. Do you want to read the rest of this chapter? Request full-text. Citations (0). References (0). ResearchGate has not been able to resolve any citations for this publication. ResearchGate has not been able to resolve any references for this publication. Join ResearchGate to find the people and research you need to help your work. Introduction to the neutrix calculus. Journal dâ€™Analyse MathÃ©matique, Vol. 7, Issue. 1, p. 281.Â This monograph on generalised functions, Fourier integrals and Fourier series is intended for readers who, while accepting that a theory where each point is proved is better than one based on conjecture, nevertheless seek a treatment as elementary and free from complications as possible. Little detailed knowledge of particular mathematical techniques is required; the book is suitable for advanced university students, and can be used as the basis of a short undergraduate lecture course. A valuable and original feature of the book is the use of generalised-function theory to derive a simple, wid